UNITED STATES PATENT AND TRADEMARK OFFICE

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09/767,850	01/24/2001	Miguel Peeters	Q62670	3360

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EXAMINER
WANG, TED M

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	09/767,850	PEETERS ET AL.
	Examiner	Art Unit	
	Ted M. Wang	2611	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>18 May 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-10</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-3, 5-7 and 10</u> is/are rejected.

7)☒ Claim(s) <u>4, 8 and 9</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   The indicated allowability of claim 6 IS withdrawn in view of the reference(s) to US 6,351,473. Rejection follows.

2.   Applicant's arguments, filed on 05/18/2007, have been fully considered but they are not persuasive. The Examiner has thoroughly reviewed Applicants' arguments but firmly believes that the cited reference to reasonably and properly meet the claimed limitations.

Claims 1, 3, 5 and 7

(1) *Applicants' argument* – However, there is absolutely no teaching or suggestion that carriers are grouped in subsets and to produce for at least one respective subset a limited set of parameter values from which constellations of each carrier in said at least one respective subset can be derived through interpolation." as recited in pages 2-3 of the remark, dated 5/18/2007.

Examiner's response –

First, Reusen's reference clearly teaches carriers are grouped in subsets (column 6 lines 10-13). That is, the carriers in the subset may be associated with each other, group by group, all carriers in one group carrying the same data bit. Furthermore, column 9, line 67 – column 10, line 11 of Resusens' reference further teaches that the carriers with frequencies f1 and f3 (**f1 and f3 are considered as first subset**) carry only one data bit, their associated allocation messages are transmitted first and the allocation

messages related to the carriers with frequencies f2 and f4 (**f2 and f4 are**

considered as second subset) are transmitted later on. Therefore, it is clear

that Reusens' reference teaches carriers are grouped in subsets.

Second, Reusens' reference teaches that Fig.4B is the possible

constellation of data bit among carriers. In column 9, line 67 – column 10, line

11, Reusens teaches that the limited set of parameter values for respective

subset is carrier frequency fi, an among of data bits, bi, and power level or

gain, pi.

For example, carriers f1 and f3 are group into subset 1 (transmitted first) that

carry only one bit and transmitted at energy level (gain) of 0.69 dB and 0.75

dB, respectively. Carriers f2 and f4 are group into subset 2 (transmitted later

on) that carry three bits and transmitted at energy level (gain) of 0.80 dB and

0.73 dB, respectively. Therefore, it is clear that Reusens' reference teaches

the limitation of "produce for at least one respective subset a limited set of

parameter values from which constellations of each carrier" as recited.

Third, the limitation of "interpolation" has not been defined in claim 1.

Reusens discloses a function block in Fig.5 to generate/derive the limited set

of the parameter values, carrier frequency, fi, among of data bits, bi, and

power level (gain), pi (Fig.5 and column 10 lines 30-48).

Reusens discloses all of the subject matter as described in the above

paragraph except for specifically teaching the limited set of the parameter

values, carrier frequency, fi, among of data bits, bi, and power level (gain), pi,

can be derived through interpolation.

At the time the invention was made, it would have been obvious to a

person of ordinary skill in the art to derive the limited set of the parameter

values, fi, bi, and pi, through interpolation. Applicant has not disclosed that to

derive the limited set of the parameter values, fi, bi, and pi, through

interpolation provides an advantage, is used for a particular purpose, or solves

a stated problem. One of ordinary skill in the art, furthermore, would have

expected Applicant's invention to perform equally well with the same structure

as that of Reusens' teaching to derive the limited set of the parameter values,

fi, bi, and pi, because the limited parameter values are mely used to indicate

the constellation information of the carries. Therefore, it would have been

obvious to one of ordinary skill in this art to modify Reusens' reference to

obtain the invention as specified in claim 1/ claim 7.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically
> disclosed or described as set forth in section 102 of this title, if the differences
> between the subject matter sought to be patented and the prior art are such
> that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said
> subject matter pertains. Patentability shall not be negatived by the manner in
> which the invention was made.

4.   Claims 1-3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Reusens et al. (US 6,351,473).

❑   With regard claim 1, Reusens et al. discloses a constellation information

transmitting arrangement for a multi-carrier transmitter or a multi-carrier

receiver of a multi-carrier system (Fig.1 and column 7 lines 22-28), said

arrangement comprising:

means for producing carrier constellation information indicative for

constellations where respective carriers will be modulated with by said

multi-carrier transmitter (column 8 lines 60-65), and

means for transmitting said carrier constellation information (Fig.2

element T' and column 8 lines 25-65), and

wherein said means for producing said carrier constellation information

(column 8 lines 60-65) is adapted to group carriers in subsets (column 8 lines

33-47 and column 9 lines 7-35, where subcarriers f1 and f3 are in one subset

and f2 and f4 are in another subset) and to produce for at least one respective

subset a limited set of parameter values from which constellations of each

carrier (Fig.5 and column 10 lines 1-48, where the parameter values are bits

allocation value, transmit energy level or gain and carrier identification

information) in said at least one respective subset. Detailed explanation has

been addressed in the above paragraph (Examiner response section).

Reusens further discloses a function block in Fig.5 to generate/derive

the limited set of the parameter values, carrier frequency, fi, among of data

bits, bi, and power level (gain), pi (Fig.5 and column 10 lines 30-48).

Reusens discloses all of the subject matter as described in the above

paragraph except for specifically teaching the limited set of the parameter

values, carrier frequency, fi, among of data bits, bi, and power level (gain), pi,

can be derived through interpolation.

At the time the invention was made, it would have been obvious to a

person of ordinary skill in the art to derive the limited set of the parameter

values, fi, bi, and pi, through interpolation. Applicant has not disclosed that to

derive the limited set of the parameter values, fi, bi, and pi, through

interpolation provides an advantage, is used for a particular purpose, or solves

a stated problem. One of ordinary skill in the art, furthermore, would have

expected Applicant's invention to perform equally well with the same structure

as that of Reusens' teaching to derive the limited set of the parameter values,

fi, bi, and pi, because the limited parameter values are mely used to indicate

the constellation information of the carries.

❏ With regard claims 2 and 3, Reusens et al. further discloses wherein said limit

set of parameter values comprises of a first number of bits (column 9 lines 7-

35 and column 10 lines 1-17) and a first gain value and a second gain value

(column 10 lines 1-17, where the gain value or energy level is 0.69 dB for f_1

and 0.75 dB for f_3).

❏ With regard claim 5, Reusens et al. further discloses means to produce a

description of said at least one respective carrier subset (Fig.2 element AMG,

AM and BAM and column 7 line 63), and means to transmit said description of

said at least one respective carrier subset (Fig.2 T' and column 7 line 63).

❏ With claim 6, Reusens et al. further discloses wherein N carriers (N=4) are

divided into M subsets (M=4) of N/M carriers with successive carrier indices, N

being a first integer number representing a total amount of carriers used in

said multi-carrier system, and M representing a second integer number

whereby N is an integer multiple of M (column 9 line 67 – column 10 line 29,

where N=4, four carriers, f1, f2, f3, f4, and M=2, two subsets, the carriers with

frequencies f1 and f3 (**f1 and f3 are considered as first subset**) carry only

one data bit, their associated allocation messages are transmitted first and the

allocation messages related to the carriers with frequencies f2 and f4 (**f2 and**

f4 are considered as second subset) are transmitted later on).

□   With regard claim 7, Reusens et al. further discloses that constellation

information receiving arrangement for use in a multi-carrier transmitter or

multi-carrier receiver of a multi-carrier system (Fig.1 and column 7 lines 22-

28), said arrangement comprising:

      means for receiving carrier constellation information indicative for

      constellations (column 8 lines 11-24 and column 10 line 9-67) where

      respective carriers will be modulated with by said multi-carrier

      transmitter (column 8 lines 60-65), and

      means for determining said constellations from said carrier constellation

      information (column 10 lines 1-67).

All other limitation is contained in claim 1. The explanation of all the

limitation is already addressed in the above paragraph.

5.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the

admitted prior art of the instant application and Reusens et al. (US 6,351,473) as

applied to claim 7 above, and further in view of Gultekin et al. (US 6,215,793).

□   In regard claim 10, Reusens et al. further teaches means to receive a

description of said at least one respective carrier subset (column 10 lines 1-

67).

Reusens et al. teaches all limitation described in the above paragraph

except specifically teaching means to interpret said description of said at least

one respective carrier subset.

However, Gultekin et al. teaches means to interpret said description of said

at least one respective carrier subset (column 5 lines 30-58, and column 7 lines

29-56).

It is desirable that the receiving arrangement to interpret said

description of said at least one respective carrier subset in order to select a

proper QAM modulation (column 5 lines 50-56) so that the communication

quality is improved. Therefore, It would have been obvious to one of ordinary

skill in the art at the time of the invention was made to include the means

function as taught by Gultekin et al. in which, means to interpret said

description of said at least one respective carrier subset, into the admitted

prior art of the instant application and Reusens' receiver in order to select a

proper QAM modulation so that the communication quality is improved.

Allowable Subject Matter

6.   Claims 4, 8 and 9 are objected to as being dependent upon an objected claim,

but would be allowable if rewritten in independent form including all of the limitations
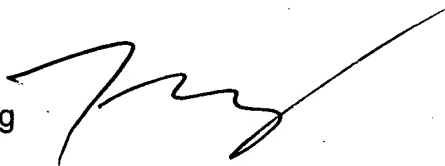
of the base claim and any intervening claims.

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M. Wang

Ted M Wang
Examiner
Art Unit 2611